

**D. Externally drained pits.** If any area of an excavation or quarry regulated under 38 M R S A §490-B or 38 M R S A §490-X will be externally drained at any time during the development, operation, or use of the site, then that portion of the operation must have a stormwater management plan for the control and treatment of runoff. The following standards and submission requirements must be met.

(1) Site Plan. Submit a topographic plan of the operation showing all areas disturbed or developed as a result of the operation, including all buildings, processing facilities, stormwater management structures, excavation areas, roads, stockpile areas, and existing and proposed contours. The plan must clearly indicate by boundary line the portion(s) of the operation that will be externally drained.

(2) Basic standard for erosion control, maintenance, and housekeeping. Externally drained excavations or quarries must meet the basic standard identified at 06-096 CMR 500 4(A) and the submission requirements identified at 06-096 CMR 500 8(C).

(3) General standards for stormwater quality. If the externally drained excavation or quarry is not located in the direct watershed of any lake, then the excavation or quarry must meet the general standard identified at 06-096 CMR 500 4(B)(2)) and the submission requirements identified at 06-096 CMR 500 8(D). For purposes of calculating volumes and sizing buffers for this standard, areas exposed for mining or stockpiling of rock, gravel, borrow, topsoil, clay, or silt shall be considered impervious area.

(4) Phosphorus standard for stormwater quality. If the externally drained excavation or quarry is located in the direct watershed of any lake, then that portion must meet the phosphorus standard identified at 06-096 CMR 500 4(C) and the submission requirements identified at 06-096 CMR 500 8(D). For purposes of determining phosphorus export for the phosphorus standard, areas exposed for mining or stockpiling of rock, gravel, borrow, topsoil, clay, or silt shall have a phosphorus export equal to that of pavement unless the Department approves alternate export rates.

(5) Urban impaired stream standard. If the externally drained area of an excavation or quarry is three acres or more of impervious area and is located in the watershed of an urban-impaired stream or stream segment listed in 06-096 CMR 502, Appendix B, then the excavation or quarry must meet the urban-impaired stream standard identified at 06-096 CMR 500 4(D). For purposes of determining the compensation fees and mitigation credits needed for the urban impaired stream standard, areas exposed for mining or stockpiling of rock, gravel, borrow, topsoil, clay, or silt shall be considered non-roof impervious area. Reclamation of existing and proposed mining areas regulated under 38 M R S A §490-B or 38 M R S A §490-X may not be used as compensation credit for meeting the urban-impaired stream standard.

(6) Flooding standard for stormwater quantity. Externally drained excavations or quarries, must meet the flooding standard identified in 06-096 CMR 500 4 D for both site operation and post-reclamation conditions. The following information must be provided to the department.

(a) A narrative describing the operation layout, the pre-excavation hydrology, the hydrology changes resulting during operations, the hydrology changes after reclamation, and the stormwater management measures to be put in place to prevent stormwater quantity impacts on and off the site.

(b) A pre-excavation drainage plan, at a scale and contour interval to be determined by the department, showing drainage subcatchment boundaries, flow paths, reaches, storage areas, cover type boundaries, and soil type boundaries.

(c) A site operation drainage plan, at a scale and contour interval to be determined by the department, showing drainage subcatchment boundaries, flow paths, reaches, storage areas, cover type boundaries, and soil type boundaries.

(d) A post-reclamation drainage plan, at a scale and contour interval to be determined by the department, showing drainage subcatchment boundaries, flow paths, reaches, storage areas, cover type boundaries, and soil type boundaries.

(e) Pre-excavation runoff rate and runoff volume calculations for the 2-year, 10-year, and 25-year storms, including runoff curve number computations and time-of-concentration calculations for each drainage subcatchment, a reach description and routing analysis for each drainage conveyance, and pond description and pond routing analysis for each runoff storage structure.

(f) Site operation runoff rate and runoff volume calculations for the 2-year, 10-year, and 25-year storms, including runoff curve number computations and time-of-concentration calculations for each drainage subcatchment, a reach description and routing analysis for each drainage conveyance, and pond description and pond routing analysis for each runoff storage structure.

(g) Post-reclamation runoff rate and runoff volume calculations for the 2-year, 10-year, and 25-year storms, including runoff curve number computations and time-of-concentration calculations for each drainage subcatchment, a reach description and routing analysis for each drainage conveyance, and pond description and pond routing analysis for each runoff storage structure.

NOTE Acceptable stormwater methodologies and models include "TR-20 Computer Program for Project Formulation – Hydrology," Second Edition, U S Department of Agriculture, Soil Conservation Service (March 1986), "TR-55 Urban Hydrology for Small Watersheds," Second Edition, U S Department of Agriculture, Soil Conservation Service (June 1986), "WIN TR-55 2003 00 24 Microcomputer Program" (January 12, 2003), and "HEC-HMS Flood Hydrology Package," U S Army Corps of Engineers (January 2001). Any methodology or model other than those listed must have prior approval from the department.

(h) A detail sheet showing the plan and cross section views for each proposed stormwater management basin, pond, or other storage structure which identifies the permanent pool elevation (if any) and the peak water levels in the basin, pond, or structure due to runoff from the 2-year, 10-year, and 25-year, 24-hour storms.

(i) A detail and specifications sheet for each basin's, pond's, or storage structure's embankment construction, impoundment construction, outlet control structure fabrication and installation, and emergency spillway construction.

(j) Logs for soil borings or test pits done at the location of each proposed stormwater management basin, pond, or other storage structure.

NOTE: Siting and design specifications for stormwater management basins and ponds can be found in 06-096 CMR 500 Appendix E and in Volume III of the department's manual *Stormwater Management for Maine* (January 2006).

(7) Easements and covenants: If the externally drained portion of the operation will require specific off-site areas for the control, disposal, or treatment of stormwater runoff, then these off-site areas must be protected from alteration through easements or covenants in accordance with the standards in 06-096 CMR 500 4(F).

(8) Management of stormwater discharges: The discharge of concentrated runoff from stormwater management basins or ponds must be to areas that have received concentrated flows before development of the operation. If an operation must discharge flows through an open-channel or pipe to any point that is not an open channel, an inlet to a storm drain system, or a natural or man-made impoundment, then the discharge will only be allowed if flow can be converted to sheet flow through use of a properly designed level spreader meeting the criteria in 06-096 CMR 500 5(A).

(10) Plans and calculations for the proposed stormwater management system must be signed by and bear the sealed of a professional engineer registered in Maine and qualified to undertake the design.

(11) Nothing in 06-096 CMR 378 3(D) may be construed to supersede or replace the Erosion and Sedimentation Control Standard established in 38 M R S A §490-D(8).

**5. Performance and design standards for the storage of petroleum products.** The owner or operator of an excavation site or rock quarry where petroleum products will be stored must submit a spill prevention control and countermeasures plan to the Department for review at least 45 days before beginning operation. The plan must detail the specific measures for secondary containment, spill prevention control and countermeasures, equipment maintenance, inspections, and staff training. The following standards address the storage of petroleum products at excavation sites and rock quarries.

**A. Performance standards for secondary containment**

- (1) Secondary containment is required for all fixed storage of petroleum products. Secondary containment may be provided by concrete dikes, earth berms, liners or the use of double-walled tanks. The volume of the storage capacity of the secondary containment structure must be at least 110% of the volume of the largest tank within that secondary structure, after allowing for the volume of tanks, footings and other solid objects within the containment structure.
- (2) If onsite refueling is necessary for fixed equipment, such as crushers, concrete batch facilities, and hot mix asphalt facilities, a specific refueling area must be designated, and located on impermeable material such as synthetic liners, clay or till.
- (3) A minimum five-foot separation distance must be maintained between the lowest point of the containment structure (including sumps and drains) and the seasonal high water table.

- (4) The filler tube for the fuel storage tank must be within the secondary containment structure or within a structure which drains to the secondary containment. Storage tanks must be equipped with direct-reading gauges and have a venting capacity suitable for the filling and withdrawal rates. Storage tanks must also be equipped with emergency vents as required by NFPA 30
- (5) If piping or hoses containing petroleum products or other potential contaminants cross areas likely to receive traffic, they must be contained within a pipe of at least the integrity of schedule 40 PVC or a metal sleeve. These lines may be elevated, this elevation must be clearly posted on the structure suspending the lines. If piping or hoses are installed in protective conduit, they must be installed such that they remain visible on all sides within the conduit. Fuel piping must not be buried or partially buried unless installed in accordance with the requirements of Chapter 691 of the Department's rules. Fuel piping must not be installed in direct contact with soil.
- (6) The use of fuel, gasoline, or kerosene to prevent the adhesion of asphalt to truck beds is prohibited
- (7) ~~Provisions must be made for the removal of precipitation from the containment structure, unless the containment area is enclosed within a structure or completely covered by a roof. Removal of accumulated water from a containment structure requires a visual evaluation of the water quality in the sump or low area of the structure. Any water exhibiting a sheen, or containing tarry or greasy lumps or sludge, may not be discharged onto the ground or into a surface water body until the contamination is removed, and no further evidence of contamination is present.~~
- Provisions must be made for the removal of precipitation from the containment structure, unless the containment area is enclosed within a structure or completely covered by a roof. Accumulated stormwater in a containment structures located within 300 feet of a surface water must be discharged through an oil/water separator to 15 ppm or less of oil and grease. If accumulated stormwater is not treated to 15 ppm of oil and grease it must be transported off site by a licensed waste oil or hazardous waste contractor for disposal.
- If the containment structure is located more than 300 feet from surface water, removal of accumulated water requires a visual evaluation of the water quality in the sump or low area of the structure. Any water exhibiting a sheen, or containing tarry or greasy lumps or sludge, may not be discharged onto the ground until the contamination is removed, and no further evidence of contamination is present. If the contaminated water cannot be treated on site such that it no longer has any visible evidence of contamination, it must be transported off site by a licensed waste oil or hazardous waste contractor for disposal.
- (8) The Department may as a condition of operation require the owner or operator to install monitoring wells in the vicinity of onsite petroleum product storage. If monitoring wells are required by the Department, groundwater must be monitored for gasoline-range organics(gro), MTBE and diesel-range organics (dro)

#### B. Design standards for concrete dikes

- (1) These structures must have concrete walls and floors
- (2) Minimum dike sizes are based on the volume of the largest tank, plus approximately 12 inches of additional dike wall height as freeboard for rain and excess fluid collection. In no case may the volume of the containment structure be less than 110% of the largest tank within it, after allowing for the volume of the tanks, footings and other objects within the containment structure
- (3) All seams and joints must be caulked, including pipe penetrations. No piping or conduits may penetrate the dike floor or the wall below the height necessary to contain 110% of the volume of stored product
- (4) Enclosures above the dike that are supported on top of the dike wall must be braced frame structures, unless the dike walls are designed to support lateral loads
- (5) A low-point sump is required for removal of rain or spilled liquid. A permanently mounted hand pump is suggested for liquid removal
- (6) Access and exit ramps may be cast as part of the containment structure

**C. Design standards for containment berms**

- (1) The floor of the fuel storage area and the berm must be constructed of low permeability earthen materials with a maximum permeability of  $5 \times 10^{-7}$  cm/sec, such as fine-grained till or clay
- (2) The earthen material must be free of any stones greater than two inches in diameter, and other deleterious material such as roots and other debris
- (3) The floor of the storage area must have a minimum thickness of six inches, and must be compacted to 95 percent standard proctor. If a thickness of greater than six inches is placed, the material must be placed in six-inch lifts, and each lift compacted separately. Compaction of multiple lifts must be done with a sheepsfoot roller or the equivalent in order to assure bonding between the lifts
- (4) The berm surrounding the area must be at least one foot in height, and constructed of similar low-permeability material, placed in six-inch lifts with each lift compacted to 95 percent standard proctor
- (5) The compacted base and berm must then be covered with at least twelve inches of gravel in order to protect the impermeable layer from damage. The berm area must be protected by the use of vegetation or other structural measures to prevent damage from weather
- (6) Concrete or asphalt ramps must be used for crossings of earth berms whenever possible. Access ramps may be located on uphill sides of the containment area, but must still crest along the axis of the berm and above grade to prevent runoff from entering the containment

area. The access ramp must be clearly marked, and other access blocked, to prevent damage to the berm from repeated vehicle and foot traffic

- (7) Containment areas with liners or compacted earthen floors must have these surfaces protected from the effects of vehicle passage. In areas subject to vehicular or foot traffic, a minimum of one foot of coarse sand or fine gravel should be placed above the liner or earth floor. An appropriately specified geotextile must be placed above earth floors to prevent damage to the compacted liner.
- (8) Pipes through an earth liner must have an anti-seep collar installed around the pipe within the earth liner. No piping or conduits may penetrate the liner below the height necessary to contain 110% of the volume of stored product.

**D. Design standards for double-walled tanks:**

- (1) Double-walled tanks must be equipped with a monitoring tube to allow for manual or electronic monitoring of the tank's interstitial space for the presence of liquid
- (2) The tank must be equipped with an audible overfill alarm set to go off at 90% tank capacity and an automatic shutoff device set to shut off product flow to the tank when it reaches 95% capacity
- (3) The tank must be equipped with an emergency vent for the interstitial space of the tank plus an emergency vent for each tank chamber

**D.E. Design standards for lined fuel storage areas**

- (1) Storage areas similar to those described above may be constructed with a synthetic liner. A minimum thickness of six inches of low-permeability material free of stones or other debris must be placed as a floor, and surrounded by a berm of similar material with a minimum height of one foot above grade.
- (2) A product-compatible synthetic liner with a 30-mil minimum thickness must be laid above this earthen structure, and covered with at least six inches of gravel in order to protect the liner. In areas subject to vehicular and foot traffic, at least twelve inches of coarse sand or fine gravel must be used.

**E.F. Equipment maintenance**

- (1) Under no circumstances may oil or other fluids be drained, topped off, or changed in the pit except when unavoidable due to the location of fixed equipment such as screeners, crushers, and asphalt plant. When draining oils or fluids from fixed equipment, precautionary measures such as portable drip pans or the use of vacuuming devices, must be taken to ensure that no spills occur.

- (2) No waste oil, lubricants, antifreeze, or other potential contaminants may be stored on the site unless they are stored securely within a maintenance garage or equivalent structure. These structures must have impermeable floors and may not have floor drains. The floor of any storage area must have a raised lip or sill in order to contain any product spilled onto the floor and to allow for easy and complete clean up.
- (3) No washing of equipment may occur in the pit or in any area where the wash water could contaminate groundwater or surface water.
- (4) In the event that a piece of equipment breaks down within the pit, the operator must tow the equipment out of the mining area rather than attempt to repair it in place. Exceptions (A) extremely minor repairs such as replacing belts or wires, or (B) in the event that towing the disabled vehicle out of the active excavation would potentially result in a greater spill, or cause greater damage to the disabled piece of equipment, or (C) in the event that towing would create an unsafe condition. The operator must take precautionary measures to ensure that any potential leak of contaminants is contained and cleaned up immediately.

#### **F.G. Safety measures**

- (1) Fuel storage tanks require high level alarms set to go off when the tank reaches 90% capacity, to prevent overfill spills. Outlet valves and power switches for pumps must be locked securely when not in use.
- (2) A responsible person must be present at all times during a refueling operation and must remain at arms reach of the fuel-hose nozzle at all times.
- (3) Each refueling vehicle must be equipped with a shovel, an impermeable container with a volume of no less than 35 gallons and a tight fitting lid, and at least two absorbent pads or pillows. An absorbent pad or portable drip catch must be in place beneath the fill tube at all times during the refueling operation.
- (4) A spill kit, clearly labeled as such, must also be kept on site in a building or water tight container. All employees involved with petroleum storage or handling must be familiar with the location and use of the spill kit. At a minimum, the spill kit must contain loose oil absorbent materials, oil absorbent pads, a nonsparking shovel. In addition, a liquid tight drums or other containers with a minimum volume of 35 gallons must also be kept on site to hold contaminated materials.

#### **G.H. Inspections, reports and training**

- (1) Fuel lines and oil bearing lines must be inspected on a weekly basis, with a record of the inspection kept in a logbook and signed by a responsible person.
- (2) Secondary containment structures must be inspected on a weekly basis to ensure the integrity of the containment structure. If double-walled tanks are used to provide secondary containment the interstitial space of the tank must be checked weekly, unless the interstitial space is monitored electronically. A record of the inspection must be kept in a logbook and

signed by a responsible person. Key items in regular inspection of the containment structures must include the following: the presence of oily water in the containment area, soil or dike lining color changes, presence of hydrocarbon odors in the immediate area, visual observance of tanks, pumps, valves and pipe connections, and determination of accumulated liquids contained in the area.

- (3) Employees must be trained in conducting inspections of petroleum storage facilities for evidence of leaks and deterioration of equipment and structures which may lead to potential spills. Employees must be trained in spill containment procedures and clean-up procedures.

### **HI. Spill containment and clean-up**

- (1) All spills or leaks must be treated as emergencies and cleaned up immediately.
- (2) The operator must immediately notify the Maine DEP 24-hour oil spill hotline at 1-800-482-0777.
- (3) The first step in any attempt to minimize the damage due to a spill or leak is to stop the flow of the potential contaminant, if possible, by closing all valves, uprighting overturned containers, or raising hoses to prevent siphoning.
- (4) If the spill or leak cannot be stopped, containment measures, such as berms, must be constructed at once. If the magnitude of a spill is such that product is flowing across the ground, priority must be given to preventing the flow of the spill toward water bodies or drainage ditches, by methods such as placement of soil berms in advance of the spill, blocking culverts and drainage ditches with absorbent pads or pillows, covering drains and catch basins with rubber pads, and similar measures.
- (5) Typically minor spills are absorbed by the upper few inches of soil, thus material should be dug up with shovels or power equipment and stored in or on impervious containers until properly disposed of. Acceptable containers include metal or plastic drums, back of a dump truck, or trash cans in good condition, with lids, or impermeable tarps with another tarp placed over the top of the contaminated material pile. All contaminated material storage piles must be covered to prevent precipitation onto the contaminated material.
- (6) There are several measures available for the disposal of contaminated soils, including use of the petroleum-contaminated soil in an asphalt plant. Under no circumstances, however, should any permanent disposal method be used without the approval of the Department of Environmental Protection Spill Response Unit. The temporary storage methods described above must be utilized until the approved method of final disposal can be implemented.

### **J. Maine State Fire Marshal's Requirements for Above Ground Petroleum Storage:**

- (1) A permit must be obtained from the Maine State Fire Marshal's Office for all petroleum storage tanks to remain on site for more than 180 days.



- (2) All petroleum storage tanks, regardless of whether they are subject to the permit requirements of the State Fire Marshal's Office; must meet all applicable standards of the State Fire Marshal's Office